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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,717	05/11/2001	Byoung-Sun Na	06192.0226.AA	5193

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EXAMINER

ERDEM, FAZLI

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/852,717

Applicant(s)

NA ET AL.

Examiner

Fazli Erdem

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 15-20, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Allowable Subject Matter

1. Claims 15-20, 23, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,2,3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahata et al. (6,476,890) in view of Kishimoto (6,424,402) further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Akiyama et al. (5,754,263).

Regarding Claims 1,2,3, and 6, Funahata et al. disclose a reflective color liquid crystal display apparatus with colored polymer layer, which can obtain bright images with a contrast when viewed from any direction. The reflective color liquid crystal display apparatus has an inside reflector and is able to produce bright images with a high contrast because unnecessary reflecting light from non-aperture portions can be decreased, and its aperture ratio can be determined approximately only by intervals of the reflective layer and intervals between the transparent electrodes. This can be accomplished by removing a reflective layer corresponding to black matrix layer, adding a black matrix function to a polymer layer having protrusions and

Art Unit: 2826

depressions under the reflective layer, and making composition on its element so that a black matrix layer is not formed on the reflective layer, but only color filters are formed. Funahata et al. fail to show the required protrusion structure. However, Kishimoto discloses a liquid crystal display and method for manufacturing the same where the required protrusion structure is shown. Funahata et al. and Kishimoto combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix on transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel for IPS Mode liquid crystal display device and method for fabricating the same where the required black matrix protrusion structure is disclosed. Finally, Akiyama et al. disclose a liquid crystal display apparatus with silicon or silicon-germanium thin films cover spaces between electrodes where the required transparent electrode on insulating substrate structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate in Funahata et al. and Kishimoto combination as taught by Hasegawa et al., Lee and Akiyama et al. respectively in order to have a liquid crystal display device with better functionality.

3. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahata et al. (6,476,890) in view of Kishimoto (6,424,402) further in view of Matsuo et al. (5,414,547)

Art Unit: 2826

further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Akiyama et al. (5,754,263).

Regarding Claims 4 and 5, Funahata et al. and Kishimoto combination disclose all the required subject matter except they fail to show the chrome structure. However, Matsuo et al. disclose a liquid crystal display device and manufacturing method thereof where the chrome structure is shown. Funahata et al., Kishimoto, and Matsuo et al. combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix on transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel for IPS Mode liquid crystal display device and method for fabricating the same where the required black matrix protrusion structure is disclosed. Finally, Akiyama et al. disclose a liquid crystal display apparatus with silicon or silicon-germanium thin films cover spaces between electrodes where the required transparent electrode on insulating substrate structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate in Funahata et al., Kishimoto, and Matsuo et al. combination as taught by Hasegawa et al., Lee and Akiyama et al. respectively in order to have a liquid crystal display device with better functionality.

Art Unit: 2826

4. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama et al. (5,689,318) in view of Akiyama et al. (5,754,263) further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Kim (6,410,214).

Regarding Claims 7-9, Matsuyama et al. disclose a color liquid crystal display device composed of color filter with a layer of three primary color array patterns fabricated by thermal dye transfer technology and the method of making such device. Matsuyama et al. disclose all the claimed subject matter except they fail to show the etching method. However, Akiyama et al. disclose a liquid crystal display apparatus with silicon or silicon-germanium thin films cover spaces between electrodes where the etching method is shown. Matsuyama et al. and Akiyama et al. combination fail to disclose the required black matrix/transparent electrode, protrusion structure, and the required method. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix/transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel for IPS Mode liquid crystal display device and method for fabricating the same where the required protrusion structure is disclosed. Finally, Kim discloses method for manufacturing black matrix of plasma display panel where the required method is disclosed.

It would have been obvious to one of having ordinary skills in the art at the time the invention was made to include the required black matrix/transparent electrode, protrusion and method in Matsuyama et al. and Akiyama et al. combination as taught by Hasegawa et al., Lee, and Kim respectively in order to make a liquid crystal display with better functionality.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuyama et al. (5,689,318) in view of Akiyama et al. (5,754,263) further in view of Matsuo et al. (5,414,547) further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Kim (6,410,214).

Regarding Claim 10, Matsuyama et al. and Akiyama et al. combination show all the claimed subject matter except they fail to show the chrome structure. However, Matsuo et al. disclose a liquid crystal display device and manufacturing method thereof where the chrome structure is shown. Matsuyama et al., Akiyama et al., and Matsuo et al. combination fail to disclose the required black black matrix/transparent electrode, protrusion structure, and the required method. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix/transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel fir IPS Mode liquid crystal display device and method for fabricating the same where the required protrusion structure is disclosed. Finally, Kim discloses method for manufacturing black matrix of plasma display panel where the required method is disclosed.

It would have been obvious to one of having ordinary skills in the art at the time the invention was made to include the required black matrix/transparent electrode, protrusion and method in Matsuyama et al., Akiyama et al., and Matsuo et al. combination as taught by Hasegawa et al., Lee, and Kim respectively in order to make a liquid crystal display with better functionality.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al. (5,414,547) in view of Sakurai (6,476,882) further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Akiyama et al. (5,754,263).

Regarding Claim 11, Matsuo et al. disclose liquid crystal display device and manufacturing method therefore. Matsuo et al. disclose all the subject matter except they fail to show the redundant structure. However, Sakurai discloses a liquid crystal display panel and repair method thereof where the redundant structure is shown. Matsuo et al. and Sakurai combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix on transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel for IPS Mode liquid crystal display device and method for fabricating the same where the required black matrix protrusion structure is disclosed. Finally, Akiyama et al. disclose a liquid crystal display apparatus with silicon or silicon-germanium thin films cover spaces between electrodes where the required transparent electrode on insulating substrate structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate in Matsuo et al. and Sakurai combination as taught by Hasegawa et al., Lee and Akiyama et al. respectively in order to have a liquid crystal display device with better functionality.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo et al. (5,414,547) in view of Sakurai (6,476,882) further in view of Suzuki et al. (5,739,880) further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Akiyama et al. (5,754,263).

Regarding Claims 12-14, Matsuo et al. and Sakurai et al. combination disclose all the claimed subject matter except they fail to show the required black matrix and aperture structure. However, Suzuki et al. disclose a liquid crystal display device having a shielding film for shielding light from a light source where the required black matrix and aperture structures are shown. Matsuo et al., Sakurai, and Suzuki et al. combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix on transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel for IPS Mode liquid crystal display device and method for fabricating the same where the required black matrix protrusion structure is disclosed. Finally, Akiyama et al. disclose a liquid crystal display apparatus with silicon or silicon-germanium thin films cover spaces between electrodes where the required transparent electrode on insulating substrate structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required black matrix on transparent electrode, black matrix

Art Unit: 2826

protrusion and transparent electrode on insulating substrate in Matsuo et al., Sakurai, and Suzuki et al. combination as taught by Hasegawa et al., Lee and Akiyama et al. respectively in order to have a liquid crystal display device with better functionality.

8. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto (6,281,952) in view of Sonoda et al. (6,433,852) further in view of Hasegawa et al. (5,654,780) further in view of Lee (6,459,465) further in view of Akiyama et al. (5,754,263)..

Regarding Claim 21 and 22, Okamoto et al. disclose a liquid crystal display device with alignment mechanism with all the claimed subject matter except the protrusion structure. However, Sonoda et al. disclose a liquid crystal display device having a spacer where the claimed protrusion structure is shown. Okamoto and Sonoda et al. combination fail to disclose the required black matrix on transparent electrode, black matrix protrusion and transparent electrode on insulating substrate. However, Hasegawa et al. disclose a method of manufacturing a liquid crystal display including performing orientation relaxation treatment on a portion of the orientation film where the required black matrix on transparent electrode structure is disclosed. Furthermore, Lee discloses a liquid crystal panel for IPS Mode liquid crystal display device and method for fabricating the same where the required black matrix protrusion structure is disclosed. Finally, Akiyama et al. disclose a liquid crystal display apparatus with silicon or silicon-germanium thin films cover spaces between electrodes where the required transparent electrode on insulating substrate structure is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required black matrix on transparent electrode, black matrix

Art Unit: 2826

protrusion and transparent electrode on insulating substrate in Okamoto and Sonoda et al. combination as taught by Hasegawa et al., Lee and Akiyama et al. respectively in order to have a liquid crystal display device with better functionality.

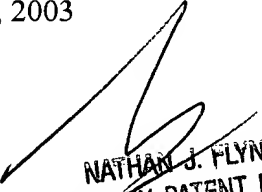
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (703) 305-3868. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

FE
July 23, 2003


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